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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,575	06/28/2005	Shaomin Samuel Mo	MATI-223US	4963

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EXAMINER	
TORRES, MARCOS L	

ART UNIT	PAPER NUMBER
2617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/516,575	MO ET AL.	
	Examiner	Art Unit	
	MARCOS L. TORRES	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12-2-04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12-2-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) filed on 12-2-04 is being considered by the examiner.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 29-32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The computer readable medium claim includes a radio-frequency or optical carrier wave which is a natural occurring phenomenon.

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Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 3-4, 6, 10, 12-13, 19, 21-22, 24, 26-27, 29 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Richley 6882315.

As to claim 1, Richley discloses an apparatus for determining a location of at least [an image of] a transmitter transmitting a signal, the apparatus comprising: a plurality of at least three antennas, separated by respective known distances (see fig. 1, item 100), configured to receive the signal, each of the plurality of antennas receiving the signal at a respective time; and a processor coupled to the plurality of antennas, the processor configured to determine the location of at least the image of the transmitter responsive to at least the respective known distances and differences among the respective times (it is noted that the above description is the common and well known triangulation technique; see col. 1, lines 19-36; col. 4, lines 13-23; col. 5, lines 21-50; col. 6, line 60 – col. 7, line 3).

As to claim 3, Richley discloses an apparatus further comprising: a display coupled to the processor for presenting the determined location of at least the image of the transmitter (see col. 7, lines 56-61).

As to claim 4, Richley discloses an apparatus, wherein the signal is an Ultra Wideband (UWB) signal and wherein the plurality of antennas are configured to receive UWB signals and the processor is configured to process the UWB signals (see col. 7, lines 28-61).

As to claim 6 Richley discloses an apparatus of claim 5, wherein at least one other antenna of the plurality of antennas is not in the substantially straight line (see fig. 1, item 100).

As to claim 10, Richley discloses an apparatus for determining a location of at least an image of a transmitter transmitting a signal, the apparatus comprising: a first antenna configured to receive the signal, the first antenna receiving the signal at a first time; a second antenna configured to receive the signal, the second antenna separated from the first antenna by a first known distance and receiving the signal at a second time; a third antenna configured to receive the signal, the third antenna separated from the first antenna by a second known distance and receiving the signal at a third time; and a processor coupled to the first, second, and third antennas (see fig. 1, item 100), the processor configured to determine the location of at least the image of the transmitter responsive to at least the first and second known distances and differences between the first time and each of the second and third times (it is noted that the above description is the common and well known triangulation technique; see col. 1, lines 19-36; col. 4, lines 13-23; col. 5, lines 21-50; col. 6, line 60 – col. 7, line 3).

Regarding claims 12-13, they are rejected for the same reasons as shown in claims 4 and 6.

Regarding claims 19 and 21-22, they are the corresponding method claims of claims 1 and 3-4. Therefore, they are rejected for the same reasons as shown above.

Regarding claims 24 and 26-27, they are the corresponding method claims of claims 1 and 3-4. Therefore, they are rejected for the same reasons as shown above.

Regarding claims 29 and 31,, they are the corresponding method claims of claims 1 and 3-4. Therefore, they are rejected for the same reasons as shown above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2, 9, 11, 18, 20, 25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richley in view of Karaoguz 20040192310.

As to claims 2, 11, 20, 25 and 30, Richley discloses everything as explained above except for wherein the apparatus is a wireless communication device configured for use in a wireless communication network including a plurality of sub-networks and wherein the processor is further configured to manage hand-offs between the sub-networks responsive to the determined location of at least the image of the transmitter. In an analogous art, Karaoguz discloses wherein the apparatus is a wireless communication device configured for use in a wireless communication network including

a plurality of sub-networks and wherein the processor is further configured to manage hand-offs between the sub-networks responsive to the determined location of at least the image of the transmitter (see par. 0043). Therefore, it would have been obvious to one of the ordinary skills in the art at the time of the invention to use the location of the device to manage the handoff decision to improve the reliability of the communication.

As to claims 9 and 18, Richley discloses everything as explained above except for apparatus wherein at least one of the plurality of at least three antennas is omni-directional. In an analogous art, Karaoguz discloses wherein at least one antenna is omni-directional (see par. 0022-0023). Therefore, it would have been obvious to one of the ordinary skills in the art at the time of the invention to permit transmit in all directions to improve the reliability of the communication.

8. Claims 5, 7, 14-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Richley in view of Melick 7340283.

As to claim 5 and 14, Richley discloses everything as explained above except for an apparatus wherein at least three of the plurality of antennas is in a substantially straight line. In an analogous art, Melick discloses an apparatus wherein at least three of the plurality of antennas is in a substantially straight line (see fig. 2). Therefore, it would have been obvious to one of the ordinary skills in the art at the time of the invention to combine teachings for the simple purpose of improving accuracy.

As to claims 7 and 16, Richley discloses apparatus further comprising: a plurality of receivers, each receiver comprising at least one of the plurality of antennas (see fig. 1, item 100).Richley does not specifically disclose each receiver configured to receive

GPS signals; and wherein the processor is further configured to determine the known distances responsive to the GPS signals. In an analogous art, Melick discloses each receiver configured to receive GPS signals; and wherein the processor is further configured to determine the known distances responsive to the GPS signals. (see fig. 1, item 105). Therefore, it would have been obvious to one of the ordinary skills in the art at the time of the invention to combine teachings for the simple purpose of improving accuracy.

As to claim 15, Richley discloses the apparatus further comprising: a fourth antenna configured to receive the signal, the fourth antenna receiving the signal at a fourth time (note that since the antennas are located at different position they will receive the signals at different times), not in the substantially straight line, and separated from one of the antennas by a third known distance; wherein the processor is further coupled to the fourth antenna and configured to determine the location of at least the image of the transmitter responsive to the third known distance and differences between the fourth time and at least one of the first, second, and third times (col. 5, lines 21-50; fig. 2, item 100)

9. Claims 8, 17, 23, 28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richley in view of Syjarinne 20040198394.

As to claims 8, 23, 28 and 32, Richley discloses the apparatus further comprising: a plurality of receivers, each receiver comprising at least one of the plurality of antennas (see fig. 1, item 100). Richley does not specifically disclose wherein each receiver configured to receive GPS time signals to synchronize local time bases in each

of the receivers; and wherein the processor is further configured to determine time differences responsive to the respective times referenced to the synchronized local time bases. In an analogous art, Syrjarinne discloses wherein each receiver configured to receive GPS time signals to synchronize local time bases in each of the receivers; and wherein the processor is further configured to determine time differences responsive to the respective times referenced to the synchronized local time bases (see par. 0037. Therefore, it would have been obvious to one of the ordinary skills in the art at the time of the invention to synchronize to the GPS clock to enhance accuracy by maintaining the synchronization.

As to claim 17, Richley discloses the apparatus further comprising: a first receiver comprising the first antenna and the processor a second receiver comprising the second antenna; and a third receiver comprising the third antenna and wherein the processor is further configured to determine time differences responsive to the first, second, and third time signals referenced to the respective first, second, and third local time bases times (it is noted that the above description is the common and well known triangulation technique; see col. 1, lines 19-36; col. 4, lines 13-23; col. 5, lines 21-50; col. 6, line 60 – col. 7, line 3). Richley does not specifically disclose wherein the receivers are configured to receive a GPS time signal to synchronize a first local time base of the first receiver. In an analogous art, Syrjarinne discloses wherein each receiver configured to receive GPS time signals to synchronize local time bases in each of the receivers; and wherein the processor is further configured to determine time differences responsive to the respective times referenced to the synchronized local time

bases (see par. 0037. Therefore, it would have been obvious to one of the ordinary skills in the art at the time of the invention to synchronize to the GPS clock to enhance accuracy by maintaining the synchronization.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARCOS L. TORRES whose telephone number is (571)272-7926. The examiner can normally be reached on 9:30 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-252-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

/Marcos L Torres/
Examiner, Art Unit 2617